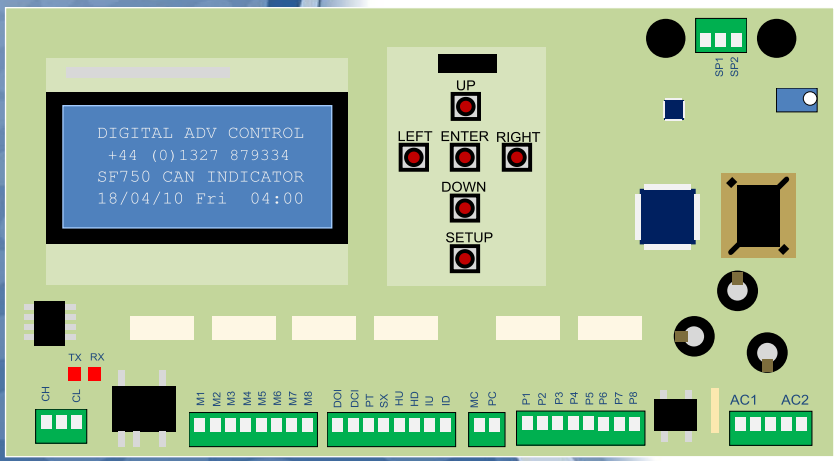
Digital Advanced Control

Indicator Control Card User Manual



BM TRADA CERTIFICATION ISO 9001:2008 UKAS MANAGEMENT SYSTEMS 012

Made in Britain

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Revision History:

Date	Revision	Description	Changed By
01/09/2011	1.0	Initial Deployment	YSP

1. Introduction

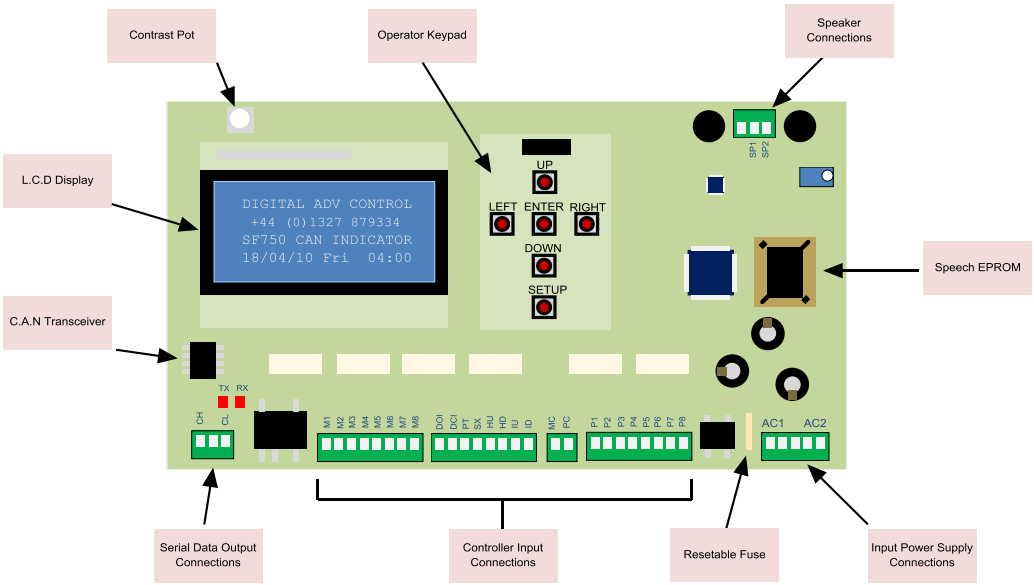
The SF750 indicator control card has been designed to act as an interface between a lift controller and the Digital Advanced Control range of dot matrix indicators and TFT LCD screens. The indicator control card is a fully featured programmable unit which includes speech, real-time and date, full opto-isolation and controller area network (C.A.N) communication.

The unit is operated from 12/24 V A/C or D/C and it's a small compact unit designed to fit on DIN Rail.

1.0 Standard Features.

- A user-friendly interface to allow changes to be made to the indicators and TFT displays on site.
- Programmable inputs including line per floor, binary, grey-code, inverted binary and seven segment inputs.
- Input monitoring via the on-board liquid crystal display.
- Real time and date from a super accurate real-time clock.
- Positive and negative common inputs as standard.
- Self test features to simplify commissioning.
- Controller area network C.A.N.
- On board speech as standard.
- **Designed**, **manufactured** and **technical support** in the UK.

2. Indicator Control Card Layout



The indicator control card consists of a main PCB board which includes power and input stages, connections for communication and a speaker, a LCD and an operator keypad. There are LED's to give indication of successful communication and operation of the card.

Setup menus are accessed via the operator interface which is designed to be both flexible and user-friendly.

Connections	Description	Voltage
AC1/AC2	AC/DC Input	12-24V
CH/CL	Serial data (C.A.N)output	
SP1/SP2	Speaker output	
M1	Lift overloaded	12-24V
M2	Lift under fire control	12-24V
M3	Lift under fire alarm operation	12-24V
M4	Lift on inspection control	12-24V
M5	Lift out of Service	12-24V
M6	Lift on Evacuation Control	12-24V
M7	CUSTOM	12-24V
DOI	speech input(doors opening)	12-24V
DCI	speech input(doors closing)	12-24V
PT	position trigger	12-24V
SX	Un-used	12-24V
HU	Hall Lantern up input	12-24V
HD	Hall Lantern down input	12-24V
IU	scrolling arrow up input	12-24V
ID	scrolling arrow down input	12-24V
MC	message common	12-24V
PC	position common	12-24V
P1-P8	position inputs 1 to 8	12-24V

LED	Description
LOOP	Loop Led, If not beating then the microprocessor has failed.
3V3	Indicates the 3V3 supply is present
5V	Indicates the 5V supply is present
TX	Can port 1 transmit LED
RX	Can port 1 receiver LED

Real-time clock

The real-time clock is provided by a super accurate real time clock with an internally temperature compensated calibrated clock to ensure the real-time clock is accurate to + or -3.5 ppm. This Real-time clock includes the minutes, hours, day, date, month and year information. This automatically adjusted for months with fewer than 31 days including corrections for the leap years. The clock operates in a 24 hour format, and a 3.2v battery which provides backup of the time and date **(Should be changed every 5 years)**.

Power supply

The power supply to the unit is from 12/24 V DC utilising a DC to DC switch mode power supply is reduced to 5V and 3.3V on the board, the microprocessor has its own on-board regulator for generating the 1.8 V and is supplied from 3.3 V. The board is a 4 layer board and has separate power and ground planes internally sandwiched inside the board.

C.A.N drivers

The microprocessor board has a controller area Network (C.A.N) device to implement a network for controlling the indicators. The communication is at 250K bits/s and uses the Peli-Can V2.0B mode with 11 bit identifiers. The transceiver is a MCP2551 CAN chip on the left hand side of the board. LED indication of the network is provided, when the LEDs are flashing brightly at a rate of 1 Hz, this indicates there is no bus communication with the indicator devices. If the LEDs flash

dimly and at a much faster rate, then communication with the indicator devices is successful.

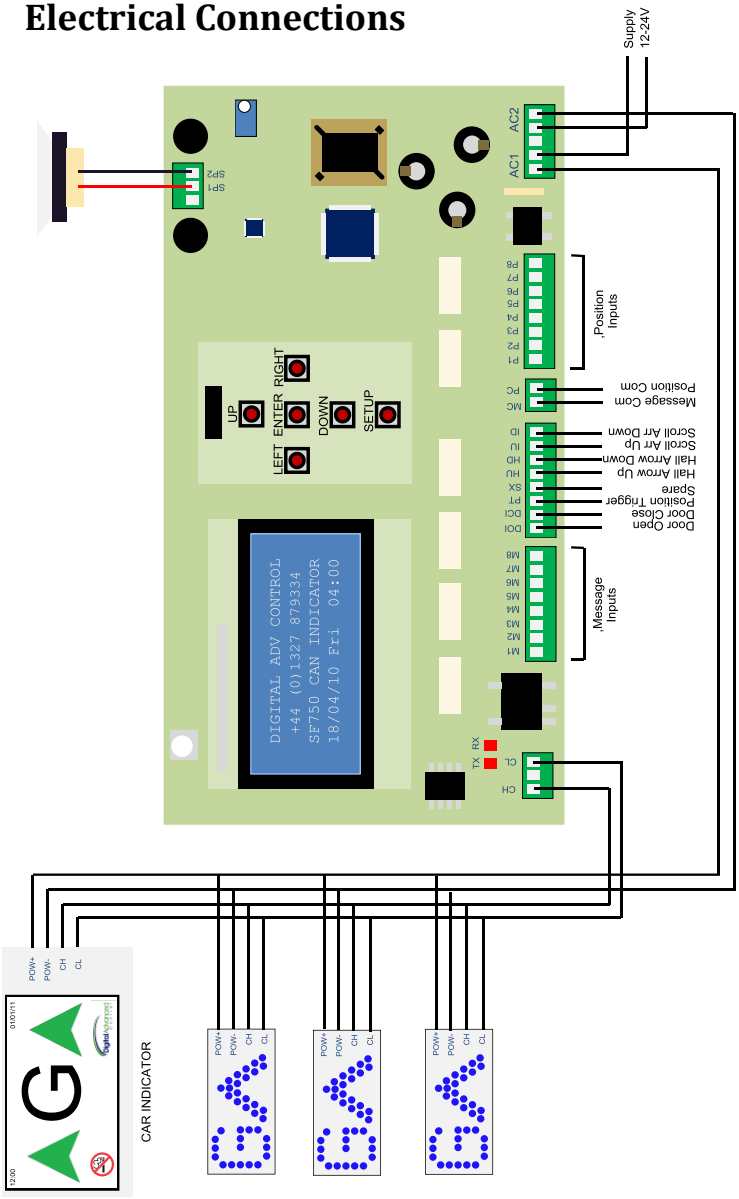
Contrast potentiometer

The contrast of the display of the microprocessor can be adjusted by the contrast pop located on the top left-hand side of the microprocessor.

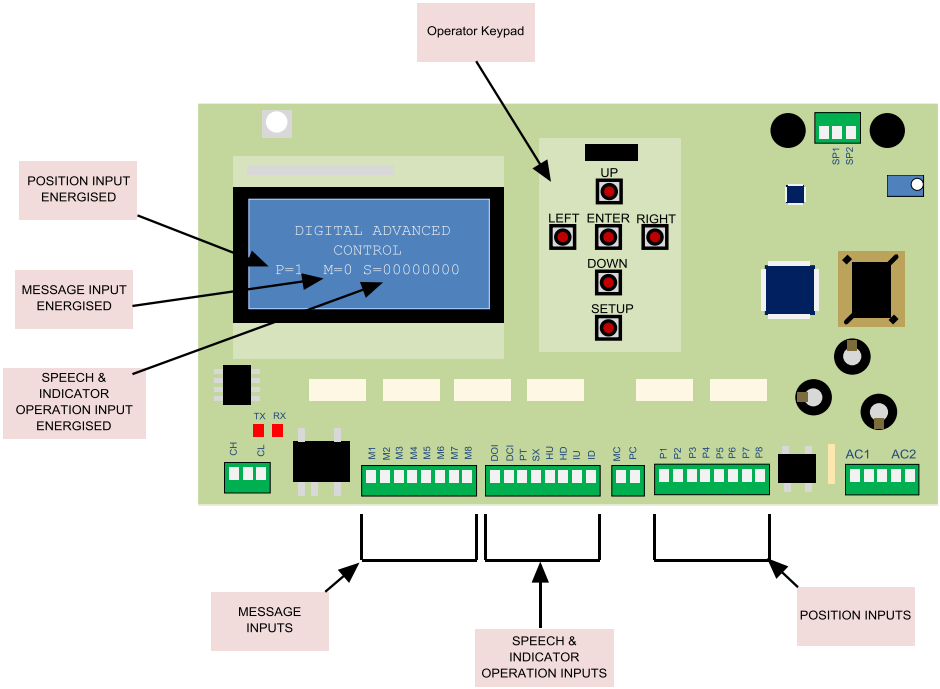
Speech Unit

The indicator control card has an on-board speech unit included. This provides a digitised speech output with a carrier frequency of 21.6 kHz. The digitised speech is filtered and then amplified using the latest D Class amplifier technology allowing for a heat-sink less design, compact size and clarity of sound.

3. Electrical Connections



4. Indicator Control Card MMI Interface



The MMI interface of the MEC32 is a Alphanumeric character LCD display which has 5 push buttons to navigate the setup menus. The buttons are configured in an intuitive arrangement similar to most modern day mobile phones allowing for ease of operation.

The buttons are as follows:

UP = UP browse/adjust parameter button

DN = DOWN browse/adjust parameter button

LEFT = Left browse button

RIGHT = Right browse button

ENTER = Confirm/Enter button

SETUP = gives access to the configuration menus.

The display also gives information on the inputs as can be seen in the diagram overleaf, these are position inputs, message inputs, speech and indicator input operation.

5. Changing a Parameter

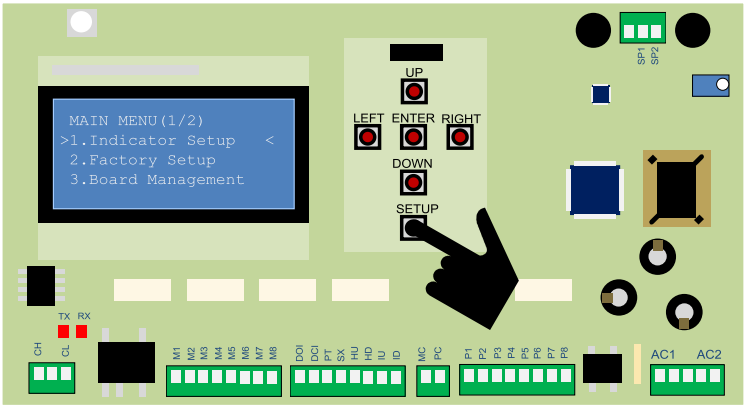
The ICC has a simple intuitive graphical MMI interface to set the parameters of the indicator system. The menus are configured from a set of main menus then into Sub-menus where the parameters can be accessed.

The system can be navigated by pressing the setup button and then using the arrows to browse through the main menu to select the sub-menu required. Once the submenu is selected (notated by the > < arrows on the far left and far right hand side of the display) then the enter/confirm button can be used to select the submenu.

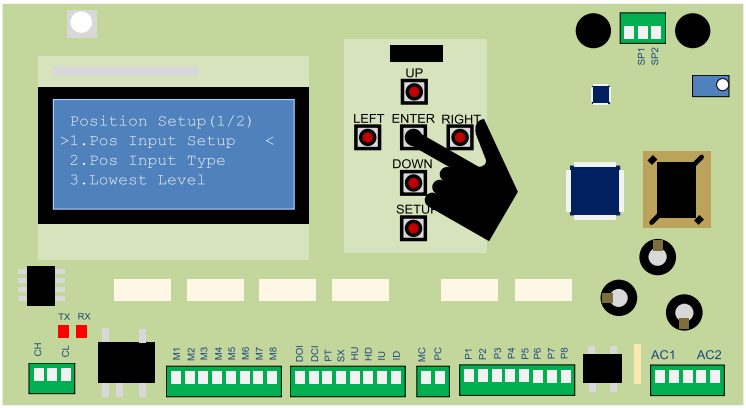
Once in the submenu to select the desired parameter to be changed and then press the confirm button, you will then enter the parameter change display. Press the confirm button again and the parameter to be changed will flash.

The parameter now may be changed using the up and down buttons and selecting the required value. Once the required value is displayed, press the Enter/ Confirm button and the parameter will stop flashing. The parameters will remain stored for at least 99 years after power removal. An example of changing the position at a floor is shown in the diagrams overleaf.

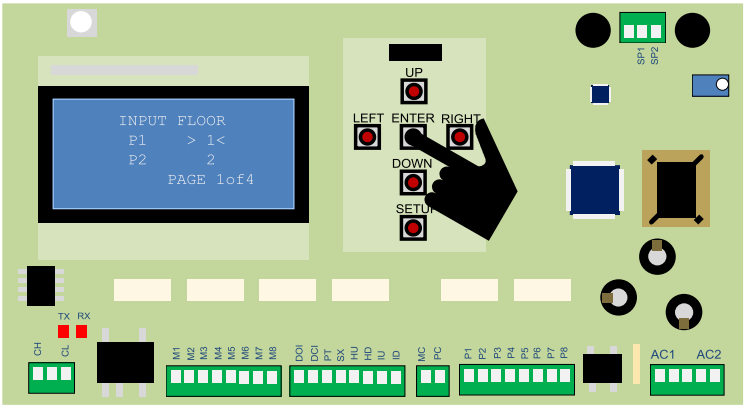
5.1 Example of changing the position from 1 to G



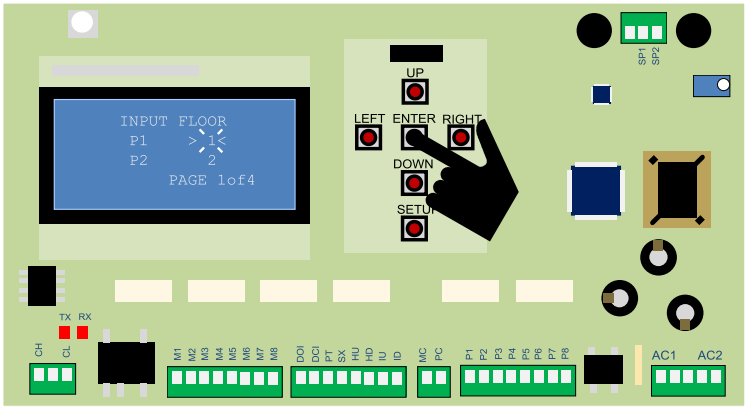
Press The SETUP Button to Select The Setup menus



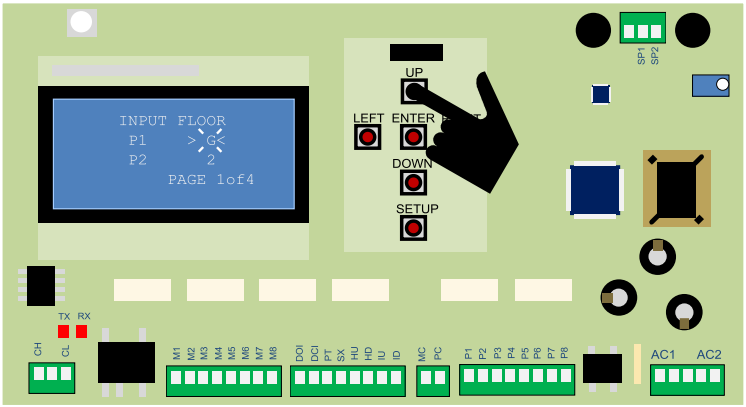
Press the ENTER button to select the position setup menu



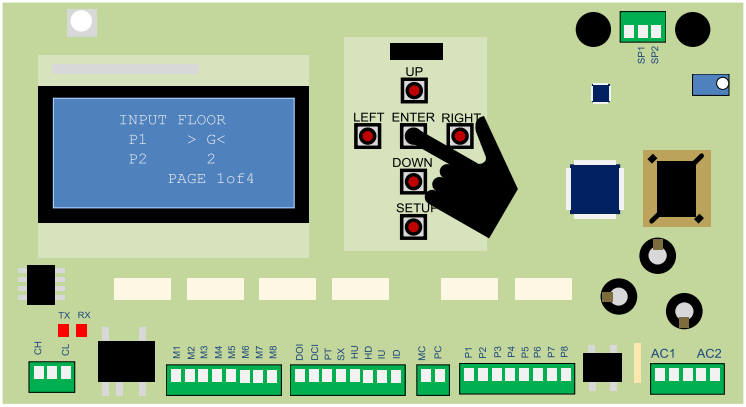
Press the ENTER button to select the position input setup menu



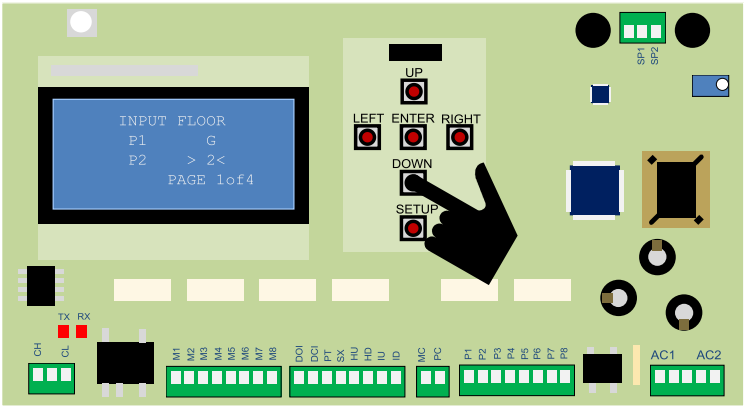
Press the ENTER button and the position will flash signaling the parameter can be changed



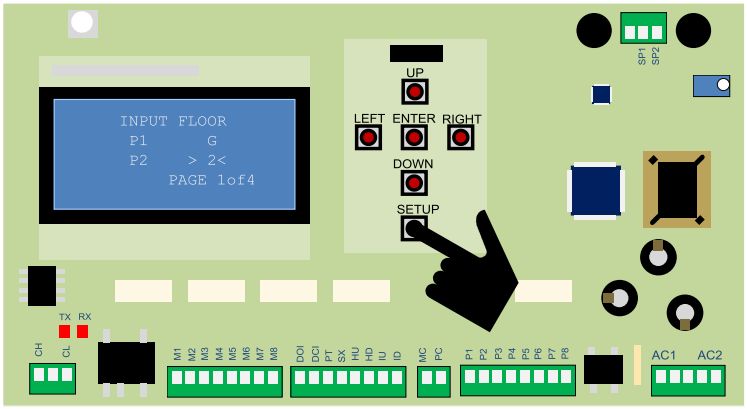
Press the UP button to change the position to G



Press the Enter button to confirm the change to G and the character will stop flashing

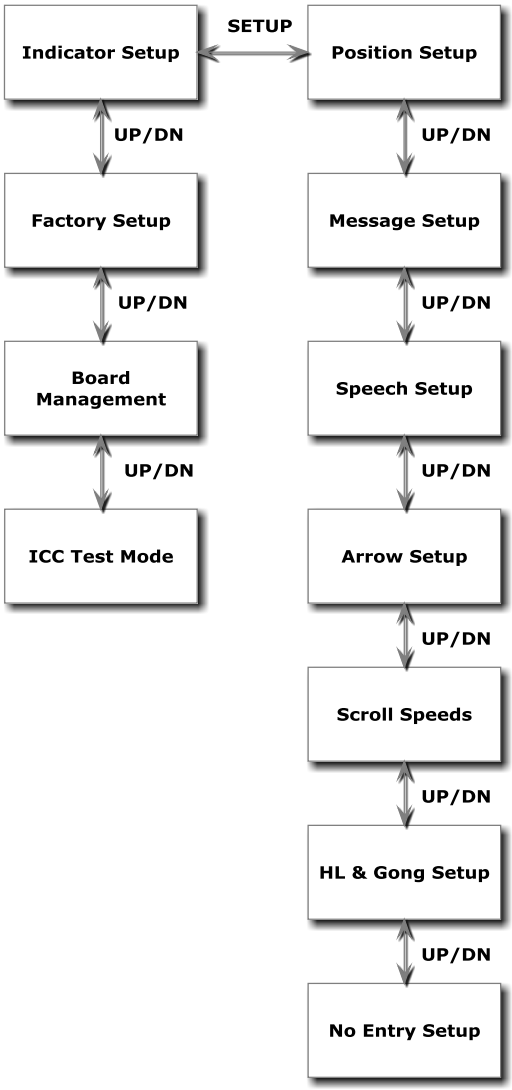


Press the DN button to scroll to the next parameter and repeat the previous to change.

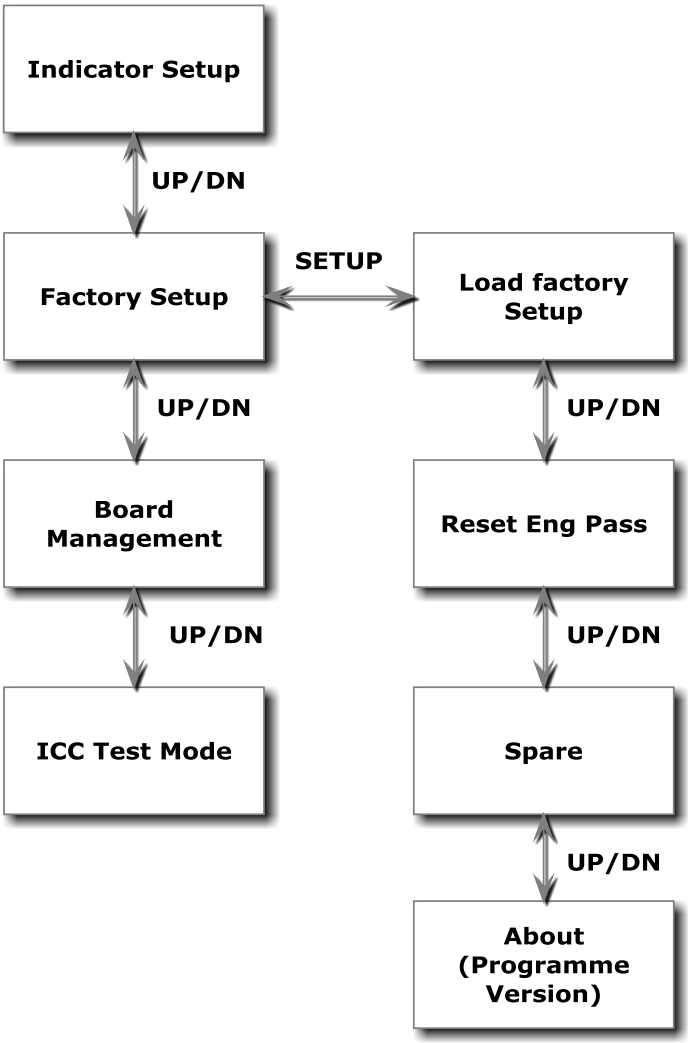


Press the SETUP button to Return to the screen.

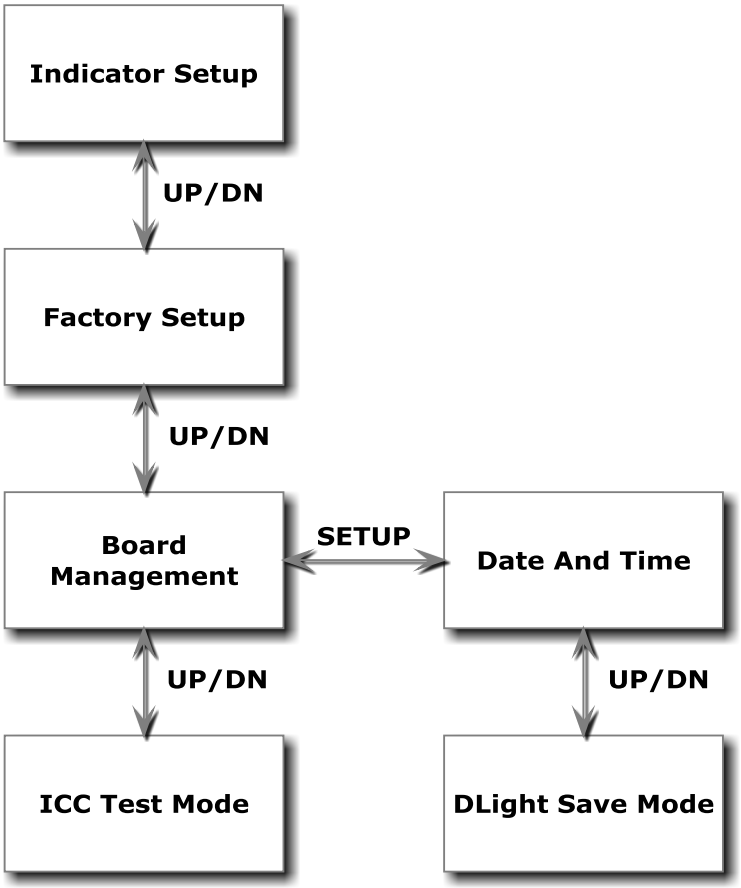
5.2 ICC Menu Structure (Indicator Setup)



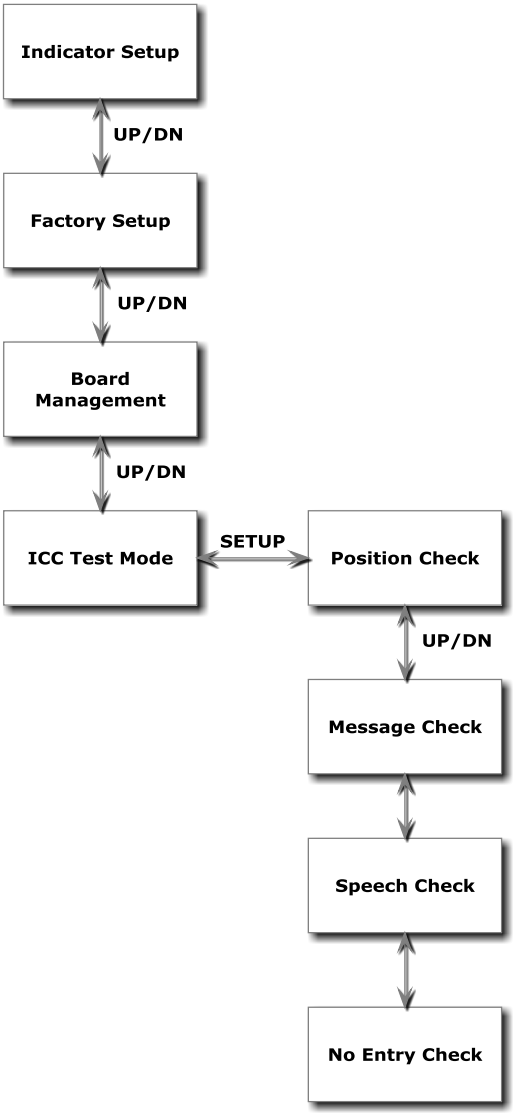
5.3 ICC Menu Structure (Factory Setup)



5.4 ICC Menu Structure (Board Management)



5.5 ICC Menu Structure (ICC Test Mode)



5.6 ICC Parameters

The Indicator Control Card has a built-in can port to act as a control interface to the serial data SF750 digital position indicators and clear view range of TFT Indicators. The settings each of the parameters is described in the table below.

1.0.0.0	SF750 indicator parameter	Description
1.1.0.0	Indicator Setup	These parameters allow you to Set up the indicators
1.1.1.0	Position Input Setup	This parameter allows you to change what position is displayed on the indicator display.
1.1.2.0	Position Input Type	This allows you to change the selected inputs from the following options: DISC – Line Per Floor BIN – Binary INVERT BIN – Inverted Binary GRAY – Gray Code SEVEN SEG – Seven Segment
1.1.3.0	Lowest Level	Sets the lowest level of the lift inputs
1.1.4.0	Highest Level	Sets the number of floors of the Lift
1.1.5.0	Brightness Setup	Set the intensity level of the indicators

1.1.6.0	Display Zero Position	Displays a base position with no inputs
1.2.0.0	Message Setup	These parameters allow you to set up the messages.
1.2.1.0	Message setup	This parameter allows the message to be written for each message input i.e. When the microprocessor outputs lift overloaded the standard message of lift overloaded will be displayed this could be changed to lift overloaded please reduce the load. The lift overloaded message which is message one will only ever be displayed on the car.
1.3.0.0	Speech Setup	These parameters allow you to set up the functionality of the speech module
1.3.1.0	Announce All FL	This parameter is set when announcing of the floors is required as each floor is passed without a speech position trigger.
1.3.2.0	Speech Volume	This parameter adjusts the level of the volume from the speech module, between 0-100%.
1.3.3.0	Quiet volume	This parameter adjusts the level of the volume when the speech

		module is in quiet mode, between 0-100%. The Quiet mode selection can be adjusted in the timed event settings.
1.4.0.0	Arrow setup	These parameters allow you to set up the functionality of the scrolling arrows.
1.4.0.0	Direction arrow type	This selects the type of direction arrow to be displayed.
1.5.0.0	Scroll speed setup	These parameters allow you to set the scrolling speeds of the indicators.
1.5.1.0	Position scroll speed	This parameter selects the speed of the scrolling position.
1.5.2.0	Message scroll speed	This parameter selects a speed of the scrolling messages.
1.5.3.0	Arrow scroll speed	This parameter selects the speed of the scrolling arrows.
1.6.0.0	Hall arrow and Gong set up	These parameters allow you to set the functionality of Hall arrow and gongs
1.6.1.0	Hall arrow type	This parameter selects the type of hall arrow to be displayed.
1.6.2.0	Hall Gong	This parameter if set to yes, turns

		on the hall gongs
1.6.3.0	Car Gong	This parameter if set to yes turns on the car gong only
1.7.0.0	No Entry Setup	
1.7.1.0	No Entry Setup	This parameter sets if message input Displays the NO ENTRY Symbol
2.0.0.0	Board Management	These parameter set the Board configuration Parameters
2.1.1.0	Date And Time	This parameter sets the time and date of the real time clock for displaying the time on the Clear View indicators
2.1.1.0	DLight Saving	This parameter sets if the day light saving is ON or OFF
2.2.0.0	ICC Test Modes	These parameters set up the self test modes of the Indicator Control Card
2.2.1.0	Position Check	This parameter displays the position on the position indicators automatically.
2.2.2.0	Message Check	This parameter displays the messages automatically on the indicators

2.2.3.0	Speech Check	This parameter checks the speech and speaker operation
2.2.4.0	No Entry Check	This parameter will display the NO ENTRY Sign on the indicators when set.

6. Maintenance Required

The Indicator Control Card its self is a solid state device, has few user serviceable parts and requires little maintenance, but the indicator control card will require the following to be done with the power off:

Note: Electronic boards contain static sensitive devices and should not be touched unless you have the required protection.

Every 5-7 Years:

Change the Battery in the Microprocessor.

Date Changed.....

Date Changed.....

Date Changed.....

Date Changed.....

Appendix A Technical Specification

Electrical Data	
Microprocessor Input Voltage	12 - 24VDC +/- 10%
Relay Board Input Voltage	24VDC +/- 10%
Maximum current of the Indicator Control Card.	0.25A
Maximum power consumption of the Indicator Control Card.	2 Watts
Relay board maximum current consumption	0.15A
Internal Voltages	5V, 3V3 and 1.8V
Microprocessor Specification	
Microprocessor Type	32Bit RISC Microcontroller with a MIPS32®M4K™ core operating at 60MHz and 90MIPS.
Can Ports	1 Can ports operating at 250Kbits/Sec with a maximum bus length of 200m terminated by 120Ω resistor.
Real Time Clock	Super accurate real time clock with an internal temperature compensated clock frequency with a drift of +/- 3ppm.
Display	4x20 STN Alphanumeric White On Blue LCD Display with LED Backlight.
Dimensions	
Dimensions	195mm x 115mm x 40mm
Weight	250 grammes
Inputs	
12 - 24V DC inputs	Can be switched positively and negatively draw 5mA each input.

Operational Temperatures	
Maximum Operating Temperature	60°C
Maximum Ambient Temperature	40°C
Minimum Operating Temperature	-10°C
EMC Compliance	
Emissions	BS EN12015:2004: **Lifts, Escalators & Passenger Conveyors** BS EN55022:2006 + A1:2007 Class A: **Emissions Standard for Information Technology Equipment**
Immunity	BS EN12016:2004: **Lifts, Escalators & Passenger Conveyors** BS EN61000-4-2:1995: **Electrostatic Discharge** BS EN61000-4-3:2002: **Radiated Immunity** BS EN61000-4-4:1995: **Fast Transient Bursts** BS EN61000-4-5:1995: **Surges** BS EN61000-4-6:1996: **Conducted Immunity**

If you require support at any stage please do not hesitate to contact us.

Tel: 01327 879 334

Fax: 01327 877 087

E-Mail: enquiries@digital-advanced-control.co.uk

We Also Provide Free Training at Our Offices in Northamptonshire

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